



PUBLIC HEALTH

**ALWAYS WORKING FOR A SAFER AND
HEALTHIER WASHINGTON**

Mercury Education & Reduction in Washington State

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Mercury

**Helping the
Public Reduce
Their Mercury
Exposure**

Why is Mercury A Problem?

Because of Bio-accumulation



**One in 6 women of
childbearing age (16%) in US
exceeds the “safe” levels for
mercury.**

**~ 630,000 babies/yr may be
born in the US with mercury
blood levels at or above the safety
limit. (Source: US Environmental
Protection Agency, 2004)**

Life-Altering Effects of MeHg



Minimata, Japan



IRAQ

AMERA & Target Audiences for Education and Outreach

- Business
- Schools
- Local Government
- The Public



Impact of MERA on Business

- Bans the sale and purchase of mercury – containing thermostats by 1-1-06
- Recycle all thermometers, fluorescent bulbs, high intensity bulbs and thermostats
- Ban the purchase of cars with convenience switches by 6/1/06
- Bans the sale of unlabeled fluorescent bulbs



Possible Businesses Impacted

- Property Managers
- Commercial Real Estate Firms
- Heating (HVAC) System Operators
- Furnace Repair Companies
- Construction Companies
- Car Dealerships
- Motor Vehicle Demolition Companies
- Maintenance & Cleaning Companies

AMERA Messages for Business

- Thermostats can be recycled at no cost through the TRC Take-Back Program
- Many small businesses can take mercury-containing products to the Hazardous Waste Facilities
- Small businesses can recycle as a CE-SQG in many cities and counties
- Fluorescent lights can and should be recycled



MERA Messages for Business

- Government will help promote participating businesses
- Hazardous waste facilities may soon be able to collect thermostats for recycling through TRC
- Green Businesses are good businesses to work with



Education of Businesses

- Mailing to Property Managers and Fluorescent Light Retailers on mercury bulb labeling
- Mailing to HVAC and Furnace Companies about thermostat recycling in 6 counties
- Thermostat Reduction Grant funded by EPA with 6 (now 7 counties) **more counties can join the effort**



Impact of MERA on Local Government

- Local government hazardous waste facilities
- Act as change agent within local government: promoting purchasing, disposal, recycling, stewardship
- Help schools discard all elemental mercury from primary and secondary schools <1-06
- Educate businesses, schools and the public
- Promote thermostat recycling via TRC Take Back Program



Impact of MERA on Local Government

- Promote recycling of fluorescent bulbs through the CE-SQG Program
- Promote proper use, handling and disposal of low energy fluorescent bulbs
- Promote educating about HG label



Local Government Personnel Affected

- Public Health
- Public Utilities
- Hazardous Waste
- Environmental Health
- Maintenance and Operations
- Purchasing Departments



AMERA Messages for Local Government

- EH Directors/ Public Health/
Public Health Nurses
 - Proper Disposal of mercury products can protect infants and children
 - Proper Disposal can help protect the environment and prevent the need for fish advisories
 - Women and Infants need to be educated about mercury risk



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Local Government Messages

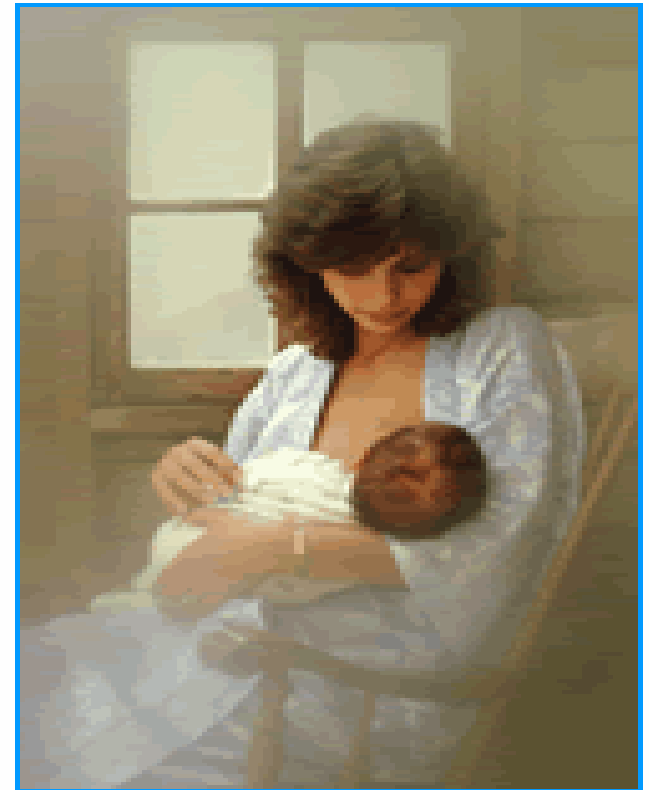
- Local governments can use WA GA's purchasing contracts
- Purchase for pollution prevention
- Promote elimination of construction using mercury thermostats
- Educate the public about what and how to recycle by taking to the hazardous waste facility.
- Haz Waste Programs may soon be able to recycle through the TRC Take Back program indirectly



Local Government Messages

Consumption Recommendations

- Fish is good food, but eat and select it wisely
- Pregnant and nursing mothers should avoid eating:
 - Swordfish Walleye
 - Shark Smallmouth bass
 - Tilefish Largemouth bass
 - King mackerel Limit canned tuna to
 - Tuna Steak 1 can/week light and in water



Impact of MERA on Schools

- Stop usage of bulk elemental Hg and Hg compounds in K-12 schools by Jan '06
- Discard all elemental mercury from primary and secondary schools < 1-06
- Recycle all thermometers, fluorescent and high intensity bulbs and thermostats
- Ban the purchase of cars with convenience switches by 6/1/06



Mercury Education & Reduction Act

- Requires “Contains Hg” label on fluorescent lamps effective Jan '04
- Bans use of bulk elemental Hg and Hg compounds in K-12 schools by Jan '06
- Requires a School Plan for removal and disposal < 1-06
- Bans the sale of Hg containing thermometers, manometers, thermostats, vehicle light switch and novelty items by Jan '06



Possible School Personnel Impacted

- Science Teachers
- Science Department Chairs
- Home Ec/Family Life Teachers
- Vocational Tech Teachers
- Administrators
- Risk Managers
- HVAC Personnel
- Nurses
- Automotive/Fleet Personnel
- Maintenance Staff

AMERA Messages for Schools

- “NO elemental mercury” in K-12 schools
- Fluorescent Lights:
 - Continued use is desirable
 - Proper handling and disposal is recommended
 - May be able to dispose at the local Hazardous Waste Program
 - Purchase green or low-energy fl bulbs
- No purchase of and proper disposal of:
 - Mercury thermostats
 - Mercury thermometers
 - Fleet Vehicles with Switches
- School Toolkit Available Soon Through DOH



Impact of MERA on Public

- Promote recycling of fluorescent bulbs
- Promote proper use, handling and disposal of low energy fluorescent bulbs
- Educate public about disposal of mercury-containing thermostats



Impact of MERA on the Public

- Educate about recycling mercury products
- Educate about HG label



MEHA Messages & the Public

- Recognize the Hg Symbol and Discard Properly
- Discard mercury thermo-stats, thermometers, fluorescent bulbs, switches, novelty items at the local hazardous waste program for recycling
- Improperly discarded mercury-containing products can cause harm to young children and developing babies

Resources

- CPG Grants from the Department of Ecology
- EPA Region X Resource Center and Tools for Schools site: www.epa.gov/schools
- TRC Collection Bins for used Thermostats
 - Visit their website to find locations
- Visit www.earth911.org website
- State mercury website: www.mercurymess.org
- Contact: Madeline Beery, DOH 360-236-3189
www.doh.wa.gov/ehp/oehas/EHA_fish_adv.htm

Resources

- State Purchasing Cooperative:
 - Contract 11601: lighting, CRT tubes, TVs, electronics
 - Contract 07198: Hazardous Waste Disposal and Recycling
- School Curriculum Material
 - Wisconsin State Website
 - National Healthy Schools at www.healthyschools.org
- Contact: Madeline Beery, DOH 360-236-3189
www.doh.wa.gov/ehp/oehas/EHA_fish_adv.htm

Resources

- MERA Fact Sheet
 - MERA Fact Sheet for Schools
 - Website in planning
-
- Contact: Madeline Beery, DOH 360-236-3189

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Mercury Chemical Action Plan Conclusions

- Significant amount of mercury released into WA's environment from disposal of common consumer products (i.e. fluorescent light tubes, thermometers, thermostats).
- Many WA residents are not aware of products that contain mercury, and are likely to dispose of certain mercury containing products with their garbage.

Mercury Chemical Action Plan Conclusions

- There is a need to educate WA residents about mercury in products and a need to provide clear disposal/recycling/and mercury management options
- Mercury pollution is a global environmental problem (i.e. many fish consumption advisories, including some here in WA)



Estimated Annual Release from Point and Area Sources of Hg in WA

| Source | Est. Annual Release (lbs.) | Receiving Medium |
|------------------------------|-------------------------------|------------------|
| Distillate Fuel #2 | 733 | Air |
| Coal-fired power plants | 436 | Air |
| Manufacturing | 337 | Air, Land, Water |
| POTWs | 331 | Land |
| Oil Refineries | 125 | Air, land, Water |
| Medical Waste Autoclaves | 106 | Air, Land |
| Crematoria | 57 | Air |
| Sewage Sludge Incinerators | 32 | Air |
| Residual Fuel | 29 | Air |
| Municipal Waste Incinerators | 18 | Air |
| Gold Mining | 0-777 | Air, Land, Water |
| TOTAL | 2,180 – 2,957 | |



Estimated Hg in Products Disposed in WA Annually

| Mercury-Containing Products | Disposed/Yr ~ |
|--|----------------------|
| Fluorescent Lamps | 437 – 505 |
| Thermostats | 412 |
| Amalgam from Dental Offices | >404 |
| Auto Light Switches | 253 |
| Button Cell Batteries | 88 |
| Dental Amalgam in Feces & Urine | 61 |
| Household Fever Thermometers | 11 – 300 |
| Total | 1,666 – 2,023 |



Outbreaks of MeHg Poisoning

| Place | Year | Cases |
|-----------|---------|--------|
| Minamata | 1953-60 | 1000 |
| Nigata | 1964-65 | 646 |
| Guatemala | 1963-65 | 45 |
| Ghana | 1967 | 144 |
| Pakistan | 1969 | 100 |
| Iraq | 1956 | 100 |
| Iraq | 1960 | 1,002 |
| Iraq | 1971 | 40,000 |
| On-going | 2001 | ??? |

Persistent, Bioaccumulative Toxins (PBT) Initiative

- Develop action plans for those contaminants that build-up in our environment
- Mercury was the first PBT chosen
- Action plan completed by Ecology and DOH in January 2003

Goals of the Mercury Chemical Action Plan

- Virtual elimination (continual reductions) of the use and release of anthropogenic (man-made) mercury in Washington State
- Minimize human exposure to mercury through better mercury collection, disposal, and management options

Elements of the Mercury Chemical Action Plan

- Overview of what we know about human-caused sources of mercury in Washington
- List mercury reduction options and recommendations
- Identify research needs
- Reduction actions will be staggered based on
 - Resources
 - Knowledge
 - Availability of non-mercury alternatives

Mercury Chemical Action Plan Implementation Prior to July 2003



- Expand existing fluorescent light recycling efforts
 - Governor's Directive to state agencies to recycle lamps
 - Seattle Mariners, Puget Sound Energy, Unico Properties voluntary lamp recycling efforts



- Household mercury fever thermometer collection/recycling programs
 - > 50,000 collected by local government collection efforts in February 2003



- Memorandum with state dental association to phase in the installation and use of amalgam separators in state dental offices by 2005

Current Activities – WA DOH

- **Developing a state-wide education plan on mercury reduction**
- **Notifying businesses and schools about fluorescent bulb labeling and recycling**
- **Contacting KC about their methods**
- **Developing fact sheets on MERA for businesses and the schools**
- **Placing Fact Sheet onto the web for public access**
- **Implementing an EPA grant to work on thermostat recycling in 6 counties**
- **Meeting with school, business leaders to share information and explore collaborative efforts.**

Current Activities – DOH & Ecology

- Implementing Mercury Education and Reduction Act
 - Fluorescent lamp labeling requirement effective 01/01/04
 - Joined Interstate Mercury Education and reduction Clearinghouse (IMERC)
 - Petition letter to EPA regarding need for national mercury repository facility
 - Voluntary MOU with state dental association to implement BMPs and install amalgam separators by Summer 2005

House Bill 1002 – Mercury Education & Reduction Act (MERA)

- DOH to develop to educate plan for schools, local governments, businesses & public on proper disposal methods for Hg-added products
- Ecology to join “multistate informational clearinghouse”
- Ecology to petition EPA requesting development of a national mercury repository site

Mercury in Schools: Spill Clean Up

When liquid mercury spills, it forms droplets that can accumulate in tiny places, and then emit vapors into the air. Mercury vapor is odorless, colorless and very toxic. Most mercury exposures occur by breathing vapors,, by direct skin contact or eating food or drinking water contaminated with mercury. Treat each exposure seriously.

Health problems can result, depending on:

- how much has entered the body,**
- how long the exposure is and**
- how the body responds., and**
- If it involves a pregnant woman**

Mercury in Schools: Spill Clean Up

There are 3 different procedures to address mercury spills:

- 1. Spills less $<$ or $=$ to the amount in a thermometer**
- 2. Spills greater than the amount in a thermometer but less than one pound (2 Tablespoons)**
- 3. Spills greater than one pound (2 Tablespoons)**

Mercury Spill Clean Up

Spills Less than that found in a thermometer

- **Remove everyone from the spill area.**
- **Shut the door of impacted area.**
- **Turn off ventilation system**
- **PREVENT children and animals from entering**
- **Mercury can be easily cleaned up from wood, linoleum, tile or like surfaces**
- **Curtains, carpet or upholstery should be removed**

Mercury Spill Clean Up

Items Needed to Clean Up a Spill

- 4-5 zip lock-type bags
 - Trash bags (2-6 mm thick)
 - Rubber or latex gloves
 - Paper towels
 - Cardboard or squeegee
 - Eyedropper
 - Duct tape or shaving cream & small paint brush
 - Flashlight
 - Powdered Sulfur
- Duct Tape

Mercury Spill Clean Up

If the spill is more than the amount in a thermometer, but less than 2 Tablespoons (1 pound):

- **Isolate the area**
- **Turn down the temperature**
- **Open windows**
- **Prevent anyone from walking through the mercury**
- **Do not vacuum**
- **Contact local or state health or state environmental agency**
- **Purchase a Mercury spill Clean Up kit**

Clean Up of Larger Mercury Spills

If the spill is more than one pound (2 Tablespoons)

- **For a spill of > 1 pound (2 Tablespoons)**
 - **Call the National Response Center (NRC)**
 - **1-800-424-8802**



Additional Information

Department Of Health

Madeline Beery 360-236-3189

Madeline.Beery@doh.wa.gov

1-877-485-7316

www.doh.wa.gov/ehp/oehas/EHA_fish_adv.htm

Or

Ecology

Ecology's PBT/Mercury Web Page:

www.mercurymess.org

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